UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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March 6, 2015

Scott McClendon
Chief Regulatory Division
US Army Corps of Engineers
Wilmington District
Regulatory Field Office
69 Darlington Avenue
Wilmington, NC 28403

Subject: **EPA NEPA Comments on Draft Environmental Impact Statement (DEIS) for the Ocean Isle Beach Shoreline Protection Project, N.C.; CEQ Number: 20150019**

Dear Mr. McClendon:

Pursuant to Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) Region 4 office has reviewed the Draft Environmental Impact Statement (DEIS) for the Ocean Isle Beach (OIB) Shoreline Protection Project. This DEIS provides an evaluation of the environmental consequences of several alternative plans that would address chronic erosion at the eastern end of OIB with a goal of protecting public infrastructure, roads, homes, vacant parcels and beaches.

The DEIS identified past Federal and locally-sponsored beach renourishment and sand bag revetments projects along OIB beginning in 2001. Detailed technical comments on the DEIS are included as an attachment to this letter (See Attachment A).

Based upon our review of the DEIS and the detailed comments provided in the attachment, a NEPA rating of EC- 2 has been assigned to this DEIS, meaning we have environmental concerns and have requested that the FEIS include updated information (where available) on a number of areas and issues outlined in the attachment. EPA has environmental concerns relating to water quality, fisheries resources, endangered species, and potential indirect and cumulative impacts. If we can be of further assistance, please contact me at (404) 562-9611 or Dan Holliman at (404) 562-9531 or by e-mail at holliman.daniel@epa.gov.

Sincerely,

Heinz J. Mueller
Chief, NEPA Program Office
Resource Conservation and Restoration Division

Attachment A: EPA Detailed Technical Comments
Town of Ocean Isle Beach Shoreline Protection Project
Brunswick County, North Carolina
Draft Environmental Impact Statement
CEQ No.: 20150019

Executive Summary

Page *i*: The DEIS provides estimates of future damage to structures and vacant lots. Out of 1,456 vacant lots on OIB, the DEIS indicates that 193 will be lost to erosion in the design year of 2045. This represents 13.2% of the total lots on OIB. Regarding structures, the DEIS estimates that 45 out of 3,247 will be lost to erosion in the design year or approximately 1.4%. Currently, there 238 parcels and 45 homes east of station 15+00 that are reported to be vulnerable to erosion damages and more than 1,800 feet of roads and associated utilities that could be damaged by 2045.

Project Area and Problem Description

Page 4: EPA requests that the PRT members be updated to reflect the current EPA representative Mr. Dan Holliman.

Page 7: It is unclear from the discussion in the DEIS on how the preferred project compares to the other alternative projects for economic benefit. EPA recommends providing additional detail in the FEIS relating to the economic benefits of each alternative.

Page 8: It appears that the orientation and position of the Shallotte Inlet is a significant source of the erosion issues at the East end of OIB. It is not clear how the current proposed project will fully address this issue. EPA recommends that the FEIS provide clarification on how the preferred alternative will address this issue.

Page 16: A table is provided that lists Category 3 and 4 Hurricanes Affecting the North Carolina Coast from 1933 to 1996. There is no reference in the text that describes the relevance of this information to 'typical' erosion rates along OIB or what effect, if any, these storms had on the OIB shoreline and the proposed project. Were erosion rates accelerated during these events and why is there adequate sand along the western portion of OIB and not the eastern end?

Pages 17-19: The DEIS does not discuss the history of shoreline erosion on OIB prior to March of 2001. There is no analytical discussion in the DEIS pertaining to why erosion rates have impacted the eastern end of the island and not the western end over the last several decades.

Page 18: The DEIS states: "*The material removed from the AIWW has eroded quickly and has been generally ineffective in slowing the rate of erosion in the area east of Shallotte Boulevard*". The DEIS does not provide a rationale or causes as to why this Federal project was ineffective in slowing the rates of erosion along this section of OIB. The DEIS indicates that numerous beach

nourishment efforts by the USACE and the Town have failed to protect against the chronic erosion and the damage caused by coastal storms. The DEIS does not identify what type of damages occurred from coastal storms and why it was expected that Federal and local beach nourishment projects would prevent possible coastal storm damages. The DEIS identifies the issue of installing sandbag revetments beginning in 2005 to protect homes along approximately 1,400 feet of shoreline west and east of Shallotte Boulevard. The DEIS indicates that sandbags have been repaired/replaced but continue to fail under the continued landward retreat of the shoreline. The DEIS does not identify the specific 'hydro-geological' reasons for the landward retreat. EPA recommends the FEIS provide the reader with a clear understanding of the causes of the landward retreat on the east end of OIB.

Page 19: The Town has reported that it has spent $3.7 million responding to erosion on the east end of the island since 2005 and the State costs are approximately $1 million. The DEIS does not identify the past Federal costs from the 5 past beach nourishment projects conducted in 2001, 2006, 2006, 2010 and 2014 as identified in Table 2.1 of the DEIS. EPA recommends the total costs for all past shoreline protection projects (Federal, State, and local) be included in the FEIS.

Project Alternatives

Page 22: EPA notes that the Deft3D Model was the primary modeling package identified in the DEIS for evaluating the project. EPA appreciates the Corps providing the methodology, supporting data, and calibration of the model in Appendix C of the DEIS.

Page 22: The DEIS identifies 5 alternatives including the No Action, Abandon/Retreat, Beach Fill Only, Shallotte Inlet Bar Channel Realignment with Beach Fill, and Terminal Groin with Beach Fill (Preferred Alternative). The tools used to evaluate alternatives in meeting the purpose and need were identified as LiDAR Surveys, USACE Beach Profile Surveys, Delft3D Model, and Maximum Periodic Nourishment Volume Per Operation. EPA recommends that any specific model or tool used to evaluate the alternatives in the context of Sea Level Rise (SLR) scenarios be included in this section of the FEIS.

Pages 23-24: Under the Alternative 1 description several historical beach nourishments/stabilization projects are discussed yet erosion continues. There is no rationale provided that explains why these projects failed on the East end of the island and why erosion continues. The DEIS does not indicate why the western 6,000 feet of the Federal Project area continues to perform very well and has not required periodic renourishment since 2001 and the eastern portion of the island is eroding at a much increased rate. The DEIS does not indicate the coastal processes at work (since 2001) that has caused this significant difference from one end of the island to the other.

Page 25: It is stated in the DEIS that "*238 parcels east of station 15+00 (location just west of Shallotte Boulevard); 45 of which have homes. All of the parcels and homes are vulnerable to erosion damage over the next 30 years should the past erosion trends continue.*" Figure 3.1 shows that the future predicted scarp line in 2045 will impact approximately 45 structures, but it is unclear on how the 238 parcels estimate was generated. These parcels account for a significant amount of the financial losses predicted in the future scenarios. EPA recommends the

FEIS clearly define where these parcels are located and how they will be impacted under future erosion scenarios.

Page 31-32: It is unclear if Alternative 4 is a reasonable alternative since it involves the modification of an authorized USACE dredge project at Shallotte Inlet. The likelihood of Alternative 4 should be clearly described in the FEIS. It is also unclear if Alternative 4 would provide the same level of protection as the preferred Alternative 5 therefore we recommend this being more clearly discussed in the FEIS. Does the average annual cost of Alternative 5 take into account the potential need to reconstruct the terminal groin structure if damaged by a storm event? If not, why was this not considered in the analysis?

Pages 23-44: The DEIS describes each alternative and the associated costs with each alternative and the general likelihood of meeting the purpose and need. However, Alternative 5 is actually an analysis of three different terminal groin lengths, including a 250-foot, 500-foot or 750-foot terminal groin structure as well as associated beach fill quantities for each (Table 3.4). Beach fill intervals are provided for the 3 terminal groin lengths in a separate table on Page 40 of the DEIS. The analysis provided states that the USACE prefers the 750-foot length terminal groin based upon the equivalent annual cost. Because of the significant cost differences and estimated effects from the 3 different terminal groin lengths EPA is unclear on why the 3 options were not considered as separate alternatives in the DEIS evaluation. The FEIS should clarify the reasoning for including them as one alternative. EPA notes that the USACE has provided summaries of the average annual economic impact of the alternatives (Table 3.10) and the 30-year implementation costs of the alternatives (Table 3.11). The USACE has selected the least costly alternative (Alternative 5/750-foot groin/5-year nourishment alternative/Preferred) using a 4.125% discount rate over the 30 year design life.

Environmental Impacts

Figure 4.5: This figure is unclear. EPA recommends providing a closer view of the project area for this figure to better identify hard bottom areas in relation to the project.

Figure 4.7-4.9: These figures indicated that previous turtle nesting areas may fall in the project area. EPA suggests adding a project area boundary or active construction zone to these figures.

Page 109: EPA recommends providing a map in the FEIS of the RWQ sample stations near the project area.

Page 111: EPA notes that there is a potential to impact historical ship wrecks in the Shallotte Inlet area. EPA is unclear on why surveys were not conducted and results not provided in the DEIS. This is an area of potential impact that should be disclosed therefore EPA recommends including survey results and an assessment of potential impact in the FEIS.

Chapter 5: This Chapter provides all of the alternatives and the potential impact on environmental resources. There are potentially substantial areas with threatened and endangered species and other sensitive species within the proposed project area. There are shellfishing, Essential Fish Habitat (EFH) and other high quality water uses within the project area that may

be impacted by the preferred Alternative 5. The FEIS should disclose consultation efforts and any conservation or mitigation project commitments required by natural resources agencies.

Page 114 (and others): The primary impacts identified in the DEIS include alterations to habitat types and 'temporary' water quality impacts such as turbidity from dredging. However, EPA notes that the temporary turbidity impacts are not described in context of cumulative effects with other (current and future) projects in the area. EPA recommends the FEIS provide information on the potential for cumulative impacts to water quality taking into account other project activities in the area.

Page 117. Reference to Table 5.2 – 3rd paragraph: most likely an editorial mistake, but it appears to EPA that the DEIS should be referencing Figure 5.2 and not the table.

Figures 5.1-5.3: The figures provided show erosion and accretion areas and cover a three-year period. It is not clear why these analyses cannot were not provided beyond 3 years. EPA recommends the FEIS provide reasoning for providing only three years of the Delft3D model simulation runs.

Pages 122-124: There are no figures provided in the DEIS that show model runs for Alternative 4 for project erosion/accretion patterns. EPA recommends either providing the figures or an explanation on why they are not included in the FEIS.

Page 125: The text on this page indicates that after a three year period accretion will occur in the segment -20+00 and -30+00 but Figure 5.5 appears to contradict this statement. The FEIS should clarify this information. Furthermore, the discussion in the FEIS should address how the accretion prediction west of station OI_020 compares between Alternatives 5 and 1.

Page 126: The cumulative impacts of other projects in the area are not described in detail in the DEIS and should be disclosed in the FEIS. The DEIS does list others projects in the vicinity of OIB that may cumulatively affect the proposed project. However, the DEIS does not provide details regarding how, the potential timing, or what severity of effects which might take place with respect to these other projects (Maintenance of Wilmington Shipping Channel; Maintenance of AIWW; Proposed Holden Beach Terminal Groin and Beach Nourishment; and Lockwoods Folly Inlet Maintenance with Oak Island Beach Nourishment).

Page 127: The DEIS does not indicate if monitoring for turbidity will be conducted during construction to ensure compliance with SWQS. The description of monitoring locations and the frequency should be provided in the FEIS. Detailed construction information provided in Chapter 5 (example Figure 5.7) appears to be more appropriate for Chapter 3 – description of the alternatives.

Page 129 (and others): It is unclear from this section if material deposited on the beach will be re-evaluated to ensure compliance with 15A NCAC 07H.0312. The discussion in this section focuses on historical sampling from borrow areas. There is a high probability that material in these areas may change over time, therefore, this material may not be compatible now. EPA recommends clarification in the FEIS.

Pages 132-133: Sea Level Rise (SLR) is generally discussed in this section. The DEIS states that "*impacts of historic rates of SLR are implicitly included in the historic shoreline change data used for OIB*". However, the DEIS does not provide for historic shoreline effects to OIB prior to 2001 when the first Federal nourishment project was performed. Prior to 2001, there did not appear to be excessive shoreline erosion problems identified in the DEIS. The DEIS states that some projections include a doubling of SLR rise within the next 50 to 100 years. The DEIS proposes that an approximate 1 foot per century rise in SLR within the project study area. The USACE maintains that only a portion of the observed shoreline change rates are associated with SLR and that doubling the rate of SLR would not double the historic rate of shoreline change. There is no further explanation for this supposition. The DEIS fails to describe the dynamic nature of sand movement on barrier islands along the NC coastline. The DEIS fails to provide the reasons that shoreline changes were substantially changed around the year 2001. The DEIS fails to explain why the western portion of OIB is relatively stable with respect to prior beach renourishment efforts and the eastern end is eroding at an accelerated rate. If SLR is not the primary cause of observed shoreline erosion changes, the FEIS should clearly identify what is causing the erosion changes in the recent decade.

Editorial notes: The SLR section of the DEIS changes the units of measures back and forth between S.I. units (e.g., meters) and U.S. units (e.g., feet), without consistently providing the conversions. This should be corrected in the FEIS.

It's not clear from the DEIS if the USACE followed internal regulations/guidance for predicting SLR and addressing coastal risk reduction/resilience. Please see the references:

- *ETL 1100-2-1*
  Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaption (2014)
  http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1100-2-1.pdf

- *Coastal Risk Reduction and Resilience: Using the Full Array of Measures (2013)*
  http://www.corpsclimate.us/docs/USACE_Coastal_Risk_Reduction_final_CWTS_2013-3.pdf

EPA recommends that these references be evaluated in the FEIS in the context of how SLR and options for coastal risk reduction were considered when selecting the preferred alternative.

Avoidance and Minimization Measures (and Mitigation)

Pages 184-186: Public beach areas impacted by the proposed project and potential safety issues associated with the landward anchored section of the groin and the seaward section's impact on boater traffic should be more clearly discussed in the FEIS. Mitigation measures should be clearly outlined when discussing these potential impacts.

Page 188 (and others): The primary minimization measures include a construction schedule for dredging which avoids migratory and breeding seasons, a terminal groin structure with a low

profile made of rubble material, a hydraulic cutterhead dredge, a dredge positioning software program to avoid certain protected areas, sediment compatibility criteria, and pipeline observations for Piping plover.

Pages 191-196. It is stated on P. 191: "*In order to avoid impacts associated with the transport of fill material to the disposal sites, the Town of Ocean Isle Beach will negotiate with the dredging contractor to monitor and assess the pipeline during construction.*" This statement is very unclear and provides no real details on what type of monitoring will be required during construction. EPA recommends clarification in the FEIS.

The DEIS describes other monitoring activities: construction observations (material color, escarpments and water quality); bird monitoring; Seabeach amaranth monitoring; Sea turtle monitoring; West Indian manatee monitoring; and habitat mapping. The responsibility for turbidity monitoring during construction is with the contractor who in turn will notify the Town's construction engineer in the event that turbidity levels exceed the SWQS. The construction engineer will report these exceedances to the NCDCM and USACE. The USEPA requests that any reported exceedances to water quality standards should also be reported to the NCDENR Water Quality Section and the USEPA and shown as a project commitment in the FEIS, Record of Decision and USACE Chief's Report.

Pages 203-207: EPA notes that a summary of the Shoreline and Inlet Management Plan is provided in the DEIS which outlines 7 main activities. EPA is unclear on how long beach monitoring will occur post project construction. A "confirmation period" of 2 years is referenced in the document, but it remains unclear if this is the extent of the beach profile monitoring post construction. If so, EPA believes that the monitoring period is not long enough to determine the long-term impacts of the proposed project. EPA recommends clarification in the FEIS.

It also appears unlikely that the USACE can definitively determine if the terminal groin will impact beaches in the vicinity of the project, mainly because these systems are so dynamic. Can it be assumed that all significant changes to beach profiles in the vicinity of the project will be attributed to the project (with exception to storms)? EPA recommends clarification in the FEIS.